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Accessible targets, but not advisable ones: The role of 'accessibility' in student apartment burglary

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Abstract

Given the apparent importance of the environmental characteristic "accessibility" in criminological literature in helping to explain the occurrence of burglary, this paper examined the role of accessibility in reported burglaries of private apartment units in Tallahassee, Florida, which were predominantly occupied by students. The study examined 96 reported burglaries committed at 94 apartment units, within 51 complexes.

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Given the apparent importance of the environmental characteristic "accessibility" in criminological literature in helping to explain the occurrence of burglary, this paper examined the role of accessibility in reported burglaries of private apartment units in Tallahassee, Florida, which were predominantly occupied by students. The study examined 96 reported burglaries committed at 94 apartment units, within 51 complexes. These apartment units were compared with a randomly-selected control group of apartment units with no reported burglaries, in terms of numerous indicators of accessibility - i.e., relative ease of entry and exit and how well each apartment was protected. The analysis revealed that accessibility played little role, by itself, in helping to account for why some units had reported burglaries in 1993, while others did not.

Very high levels of accessibility were found for the apartment units of study, overall. Nevertheless, due to other factors, a very low burglary rate was present for student occupied apartment units in 1993. Recommendations are offered which may lower the rate of student apartment burglary further.

Introduction Jeffery et al. (1987) suggested that buildings which were targeted for crime exhibit certain traits much like human crime victims. For example, convenience stores which offer higher levels of visibility to people from the outside may be less vulnerable to robbery than those which have poor levels of visibility. If this is true, identification of such traits may prove to be a useful step in helping to prevent crimes against those buildings and their occupants.

In fact, it is well-established that the modification of features of urban design can reduce crime (Hough et al., 1980; Jeffery, 1971; Mayhew et al., 1979). Since crimes occur in a specific environment in a systematic and permanent manner (Hough et al.,1980), crimes in those areas can be prevented through environmental management or alteration, and control of access (Mayhew et al., 1979).

Jeffery (1971, 1977) argued that any environment can be managed, designed, or manipulated in order to alleviate criminal occurrences. More specifically, Jeffery (1977:212) wrote that "The way we design our apartment buildings and housing complexes has everything to do with the crime pattern of the city." From this, one can imagine that the environmental design of apartment units may very well be altered in order to prevent certain crimes (e.g., residential burglary) from occurring.

Given that during the next decade, public college and university enrollments in the United States are projected to increase from just under 11.2 million in 1993 to about 12.5 million by the year 2002 (The Almanac of Higher Education-1993:44-5), the likelihood that apartment complexes will continue to built in cities and towns across the United States to accommodate these swelling student populations is very high. The anticipated effects of this increase on capital resources, operating budgets, and tuition costs for higher education are receiving considerable research, policy planning, and media attention. A particular aspect of all of this which has received little if any systematic study or public exposure is the security of students and their property in off-

campus, privately owned and operated, multiple-unit housing facilities - i.e., apartment complexes. This study is one attempt to focus on this neglected aspect of student residency. This paper examines the role of accessibility in reported burglaries of private apartment units in Tallahassee, Florida, which are predominantly occupied by students.

Environmental Characteristics of Burglary Property

Property offenders use distinguishing environmental stimuli which function as cues to provide important information about potential targets' relevant characteristics (Bennett and Wright, 1984; Brantingham and Brantingham, 1981, 1993; Brown and Altman, 1981; Cromwell et al., 1991; Tunnell, 1994; Wright and Decker, 1994). Specifically, it has been suggested that burglars may choose targets which exhibit "useful" characteristics, such as poor street lighting, lots of bushes, and quiet streets, which may result in low levels of surveillability and an abundance of hiding places (Letkemann, 1973; Phelan, 1977).

At the same time, certain environmental stimuli may serve as inhibitors to criminal activities. Cromwell et al. (1991:33) reasoned that a burglar's decision to offend against a residence was based primarily on environmental cues which were perceived to have immediate consequences. The rationalistic argument of Cromwell et al. revolve daround the burglar weighing potential gains versus potential risks. The greater the likelihood of gain and the lower the likelihood of risk, the greater the likelihood for an attempted burglary offense to occur. Brantingham and Brantingham (1981:65) earlier developed a similar hypothesis regarding burglars' judgments and decisions about likelihood of successful entry into and exit from a residence.

Given a constant expectation of gain, environmental characteristics which suggest an excess of risk should discourage burglars from offending in an immediate environment. An environmental cue used by burglars in the decision whether or not to offend is the degree of risk involved (Bennett and Wright, 1983, 1984; Cromwell et al.,1991; Jeffery, 1971, 1977; Maguire, 1980; Mayhew et al., 1979; Tunnell, 1994; Wright and Decker, 1994). Environmental risk cues associated with the offense of burglary have generally been arranged into three categories (e.g., see Cromwell et al., 1991). These include surveillability, occupancy, and accessibility. As defined by Cromwell et al. (1991:35,37):

Surveillability refers to the extent to which a house is overseen and observable by neighbors or passerby;

Occupancy is any indication someone is home.

Accessibility indicates how easily the residence can be entered and how well the site is protected.

Research has consistently stressed the importance of each environmental factor in helping to account for the occurrence of burglary. However, little work has been done with regard to burglary in privately owned apartment complexes, especially in conditions of resident homogeneity - e.g., where the majority of residents are students.

Robinson (1994) conducted exploratory research in order to identify and describe environmental characteristics of burglary in private apartment complexes predominantly occupied by students, for the calendar year 1993. Specifically, Robinson analyzed common variables found in the literature related to environmental criminology and burglary, including various indicators of occupancy, surveillability, and accessibility. For the purposes of his research, Robinson utilized the definitions from the earlier work of Cromwell et al. (1991).

Not surprisingly, initial findings revealed statistically significant inverse relationships between surveillability and burglary - i.e., apartment units which were highly surveillable from other apartments, pools, laundry facilities, parking lots, and streets, were less likely than those units which had lower levels of surveillability to have had a reported burglary in 1993 (Robinson and Robinson, 1997). Additionally, preliminary analysis suggested that occupancy helped to account for why burglaries occurred during certain hours of the day, days of the week, and months of the year -i.e., they revolved around student occupancy patterns (Robinson, 1994). More in-depth investigation specifically related to occupancy patterns of student apartment residents verified this preliminary finding (Robinson and Robinson, 1995).

The preliminary findings, which were most surprising by Robinson (1994) were ones which ran directly against common knowledge in the field. Accessibility seemed to play little role in helping to differentiate apartment units with reported burglaries and

apartment units with no reported burglaries. As indicated above, the literature has been fairly consistent with regard to the positive effect of accessibility on burglary - the higher the degree of accessibility, the greater the chance for the occurrence of burglary.

Accessibility

Rengert (1981) stated that crime sites must be "accessible" to potential criminals in order to be considered a criminal "opportunity." Rengert (1981:201) posited that "the relative magnitude of an opportunity is proportional to its relative degree of accessibility, which will partially determine its probability of being exploited." Rengert's conception of accessibility entailed two factors - the existence of potential offenders and ease with which potential targets could be reached. Directly determining the existence of potential offenders is very difficult (Robinson, 1997). Therefore, this aspect of accessibility is rarely assessed in environmental studies of crime. The risk cues associated with accessibility in the study of burglary by Cromwell et al. (1991:37) included location and type of doors and windows, and the extent of target hardening mechanisms such as locks, burglar alarms, fences, walls, burglar bars, and dogs.

Taking these two definitions together, accessibility consists of at least two components: the presence of target hardening devices; and other accessibility indicators such as the difficulty of entry and exit due to location and type of entry points (doors and windows). It is presumed that the presence of such factors decreases the likelihood of victimization from burglary.

Target Hardening

Girard (1960) wrote that precautionary measures by owners could reduce the occurrence of crimes. In order to reduce residential burglary, Girard stated that strengthening security for the premises would serve as an ample deterrent. Similarly, Mayhew et al. (1979) posited that crime could be prevented through target hardening or removal. As mentioned above, this is an aspect of accessibility. An ideal residence would maximize physical security - windows, doors, and floors would offer little accessibility to outsiders.

According to Clarke and Mayhew (1980) target hardening includes the utilization of stronger locks and other security measures. Target removal signifies easing or removing the likelihood of victimization by removing the potential target. The target hardening or removal approach to deter or prevent crime (e.g., burglary), is built upon the assumption that potential intruders will be either less successful in attempting a burglary, or less likely to attempt a burglary in the first place.

Decker (1972) showed that mechanical deterrence was an effective impediment to the occurrence of criminal offenses. He wrote that if a mechanical device makes violations of the law difficult, it is a superior hindrance to violation of the law than fear of apprehension alone. Yet, some of the research done on security precautions taken by owners has shown little support for the thesis of target hardening. Davidson (1984:71) wrote that there is little evidence that security is a deterrent. When burglars have been approached regarding the process through which they choose their targets, many have not discussed security as a specific concern (Bennett and Wright, 1983; Goodman et al.,1966; Maguire, 1980; Phelan, 1977; Reppetto, 1974; Waller and Okihiro, 1974; Walsh, 1980). Locks sometimes seem not to be a major deterrent to burglars (Bennett and Wright, 1984; Maguire and Bennett, 1982; Walsh, 1980; Wright and Logie, 1988). Instead, burglars have stressed the deterrent effect of such environmental characteristics as known or suspected occupancy, presence of a dog, good visibility, or few escape routes. Winchester and Jackson (1982) also put forward the idea that security measures do little to deter criminal activity. In their sample, security mechanisms did not seem to differentiate burglarized and non-burglarized homes. However, other research supports the notion that target hardening has a deterrent effect on burglary victimization. For example, burglars interviewed by Cromwell et al. (1991:37) were concerned with "the extent of target hardening such as locks, burglar alarms, fences, walls, burglar bars, and dogs." Victims in a Scarr (1973) study were generally less "well-protected" than nonvictims. Non-victims in Scarr's study were more likely to have taken security precautions in order to reduce the opportunity for burglary to occur, including added locks and lighting. Burglars were apparently deterred by the presence of locks and dogs. Similarly, factors identified by Molumby (1976) related to accessibility and target hardening apparently lessened the likelihood of offending. The presence of dogs and locks reduced the chances of a burglary occurrence. Reppetto (1974) showed that houses in Boston with relatively high levels of door security enjoyed some protection from victimization. Targets with additional security devices were also avoided. Waller and Okihiro (1978) showed that high-income apartment blocks with security and porters/doormen were less often victims of burglary. In a study by Newman and Franck (1980), important accessibility indicators included utilizing intercom systems or guards, having a lock on the front common entry door, keeping front doors locked at

least fifty percent of the time, having inaccessible front windows and rear windows, andkeeping secondary exits locked. Poyner (1983:37) argued that these findings could be regarded as a preliminary guide to security procedures for public apartment blocks.

Bennett and Wright (1983, 1984) indicated that the presence of alarms and dogs may deter burglars. Wright and Logie (1988) showed that juvenile house burglars were deterred from choosing particular targets based on certain circumstances. The presence of dogs or alarms clearly affected the youngsters' decisions to burglarize or not. This has been shown to hold true for older offenders, as well (Bennett and Wright, 1984; Waller and Okihiro, 1974). Conklin and Bittner (1973) and Winchester and Jackson (1982) suggested that residences with alarms may experience less severe losses, perhaps as a result of time constraints.

Other Indicators of Accessibility

Newman (1972) argued that modifying features of architecture and reducing accessibility would reduce the likelihood of crime. Newman pointed out that both symbolic barriers (such as decorative gateways, steps,) and real barriers (such as high walls, locked gates) aided in the definition of private zones. In the presence of these barriers, crime would be less likely, since they would be recognized by offenders as less accessible. He also argued that increasing territoriality would likely make intruders feel more distinguishable, and thus, less likely to offend.

According to Brown and Altman (1981), there are several clusters of environmental cues related to accessibility which may or may not lead to an offense. One such cluster is concerned with "actual and symbolic environmental barriers," as previously discussed by Newman (1972). Actual barriers physically impede successful negotiation, and include locks, gates, fences, walls, and electronic security (target hardening). It may also include distance from the target, and familiarity with the area. Symbolic barriers do not physically restrain entry and exit, but signify territoriality, ownership, and occupancy. These would include welcome signs, other signs, gardens, and welcome mats.

Brown and Altman (1981:66) suggested that the burglar is concerned with "the openness/closedness or degree of accessibility of the street, site, and home." They

argued that the greater the likelihood that a potential intruder identifies any boundary as a public territory (see Altman,1975), the greater the likelihood that the boundary will be crossed.

Poyner's (1983:10) concept of movement control, defined as "any measure that can limit the movement of a potential offender through a site," is a part of accessibility. It would include Newman's ideas of actual and symbolic barriers, as well as reducing the number of entrances, allowing access to zones within a building by key only, closing off streets, controlling access to neighborhoods, and managing facilities to reduce congestion.

Bennett and Wright (1983, 1984) also discussed concepts of risk which are indicators of accessibility, including presence and location of alternative means of escape routes, rear access, assumptions of police response time (other risks), and size of windows (also see Maguire and Bennett, 1982). This was similar to Molumby (1976) who determined that burglars were more likely to select residences to offend which provided easy entry and exit by street, important factors related to accessibility. Newman and Franck (1980) showed that ease of access to walk-up and high-rise apartment blocks and individual units directly influenced burglary victimization in low-income apartments in San Francisco, Newark, and St. Louis. Other researchers indicated burglar preference for houses and stores on the corner of the block which were easily accessible at the side or back, and not visible to others (Luedtke, 1970; Winchester and Jackson, 1982).

Reppetto (1974) determined that young burglars preferred easily accessible targets, while older burglars preferred more profitable targets, regardless of accessibility. By asking burglars in the Boston area which targets they would burglarize and why, several reasons related to accessibility emerged in the Reppetto study. Among them were absence of police or security patrols, and ease of entry and exit.

Waller and Okihiro (1978), in a study of burglary in Toronto, Canada, determined that certain factors of the physical environment could be utilized to explain high victimization rates of burglary. These included location of the apartment unit in the building, general affluence of the area, and absence of a doorman. Each of these variables is an indicator of accessibility. Furthermore, their findings suggested that strategies of restricting entry

or decreasing accessibility were effective means of preventing or easing the occurrence of burglary.

Winchester and Jackson (1982) conducted a study in Kent, and compared samples of houses that had been burglarized versus those that had not been burglarized, mainly focusing on the concept of accessibility. They determined that a structure's accessibility directly related to burglary rates. Measures related to access included the ease of getting onto the property, surrounding land use, the degree of access from the front to the back of the house, the type of road in which the house stood, and proximity to the nearest major road. In terms of land use and placement of property, burglar preference was reported by Rengert and Wasilchick (1985) for residences located either on corner property or directly next to empty lots, presumably due to easier accessibility and less surveillability. Similarly, victims in Scarr's (1973) study were more likely to reside in property located on the corner of the block, indicating a higher degree of accessibility(easier escape).

Likewise, Bevis and Nutter (1977) found that burglary rates in Minneapolis were not as high for dwellings located on cul de sacs as they were for those located where streets intersect. In other words, there were more burglaries for residences with an easier degree of "ingress and egress," or higher levels of accessibility.

Clearly, with all the work that has been done on the role of accessibility and burglary, there is some consensus that certain indicators of accessibility are related to lower rates of criminal offenses such as burglary. The goal of this research is to study the degree to which measures of accessibility help differentiate burglarized and non-burglarized student apartment units. This will begin to fill a discernable gap in the criminological and security literature regarding environmental characteristics associated with criminal victimization.

Methodology

This study focussed on private apartment units predominantly occupied by students in Zone 7 of the Tallahassee Police Department's (TPD) criminal jurisdiction in Tallahassee, Florida. This area was selected for its convenience, high rates of reported

crime (e.g., the highest rates of reported burglary in the city of Tallahassee), and location near two major universities and a community college. Apartment complexes were identified from five sources: the local telephone directory; the Tallahassee City Directory; the "Tallahassee Apartment Guide" (1994); data provided by the police department; and personal tours of the area. Utilizing multiple sources provided the most assurance that all complexes which contained over fifty percent student occupants were selected for this study (and most actually contained between 90% and 99% students). A total of 66 apartments complexes were identified. Of these, 15 were dropped, since they did not meet the definition of a predominantly student occupied apartment complex. Thus, 51 apartment complexes were studied. These contained a total of 3,570 individual apartment units.

The police crime data for this study contained the addresses of all residential burglaries within Zone 7 known to TPD during the calendar year of 1993. Verification of the location of each address was made through multiple site visits. Other information provided by TPD included point of entry and method of entry for each burglary, date of offense, and estimated time of service by TPD. The remainder of the data was collected through observations made at each site.

The unit of analysis in this study was the apartment unit. This study specifically analyzed 96 burglaries, committed at 94 units, within the 51 complexes. A total of 140 non-burglarized units were randomly selected for a control group. Data for apartment units of which burglaries were reported, were compared with an equal number of randomly selected units which had no reported burglaries, within the same apartment complex. For apartment complexes which had no reported burglaries during the calendar year of 1993, the number of apartment units selected for study was based upon the average num-' ber of burglarized units for other complexes of the same or nearest size.

Apartment complexes were visited during daylight hours, as nighttime data were not utilized for the purposes of this study. A rigorous attempt was made to maximize measurement validity through careful selection of indicators of "accessibility" based on a thorough literature review. Measurement reliability was maximized through multiple site-visit check-ups by a panel of judges.

Definitions

For the purposes of this study, a predominantly student-occupied apartment complex was defined as any grouping of privately owned non-university affiliated rental units which housed over fifty percent students. Residences in the zone which did not meet this definition were excluded so that proper inferences could be drawn regarding burglary in student apartment units.

The independent variable in this study was accessibility. For the purposes of this research, the term was defined according to Cromwell et al. (1991:37). Accessibility was defined as "indications of how easily the residence can be entered and how well the site is protected."

The dependent variable in this study was burglary reported to TPD. It was defined according to Section 810.02(1), Florida Statues (1993) as:

> entering or remaining in a structure or a conveyance with the intent to commit an offense therein, unless the premises are at the time open to the public or the defendant is licensed or invited to enter or remain.

Attempted burglaries were included for purposes of this study.

Indicators of Accessibility

Accessibility was collected at the nominal, ordinal, and interval levels. Data for accessibility are presented in this paper as percentage tables and pie charts.

General comparative data for accessibility include both aggregate level data for apartment complexes and individual level data for apartment units. Apartment complex

data include: presence of security personnel or roving patrols; presence of fences or walls; and presence of neighborhood watches.

Individual apartment unit data include: point of entry for units with reported burglaries (Figure 1); method of entry for units with reported burglaries (Figure 2); type of front entrance for units with reported burglaries versus units with no reported burglaries (Table 1); type of front door for units with reported burglaries versus units with no reported burglaries (Table 1); type(s) of locks on front doors for units with reported burglaries versus units with no reported burglaries (Table 1); indications of alarms for units with reported burglaries versus units with no reported burglaries (Table 1); distance from unit parking to nearest street for units with reported burglaries versus units with no reported burglaries (Table 1); distance from unit parking to nearest street for units with reported burglary versus units with no reported burglary (Table 1); location of unit in building - corner or not corner (Figure 3); and location of unit in building by floor (Figure 4).

Based on the literature review, it was expected that: burglarized units would have more common entryways such as sidewalks than more private entryways such as balconies; burglarized units would more likely have wooden doors than metal doors; burglarized units would have fewer locks than non-burglarized units; burglarized units would be less likely to be equipped with alarm systems than non-burglarized units; burglarized units would be located closer to parking lots and streets than non-burglarized units; and burglarized units would be disproportionately located on corners of buildings and on the first floors.

Some of the indicators of accessibility identified in the criminological literature which may or may not have been present at the time of individual offenses (e.g., presence of barking dogs, indicators of private property such as welcome mats) could not be collected because site observations were not made until 1994. These accessibility indicators are immediate and quickly go away, making it very difficult to observe them at the time of the actual offenses.

Findings and Interpretations

In terms of aggregate level or apartment complex indicators of accessibility, only one out of the 51 complexes studied had security personnel or roving patrols. Only three out of the 51 complexes were completely fenced in or surrounded by walls to help alleviate trespassing and possible burglary. None of the apartment complexes had neighborhood or apartment complex watches in effect. These indicators would suggest that overall, student apartment complexes are highly accessible to potential offenders from the outside.

Findings related to the individual level or apartment unit complex indicators of accessibility follow. These are utilized to differentiate apartment units with burglaries reported to the police with apartment units without reported burglaries to the police.

Figure 1 illustrates the point of entry for units with reported burglaries. Figure 1 shows that most reported burglaries of student apartment units occurred through front doors (54%). Meanwhile, 28% of reported burglaries occurred though front windows. Therefore, 82% of reported burglaries in the area studied occurred through the front of the building. Ten percent (10%) of burglaries occurred through back windows, 4% occurred through side windows, and 4% occurred through sliding glass doors. These results are at least in part due to the nature of student apartment units in Zone 7 of TPD's criminal jurisdiction - a large number of such units only had front side openings.

Figure 2 illustrates the method of entry for units with reported burglaries. Figure 2 demonstrates that 50% of reported burglaries were committed through forcible means, while 29% were achieved through non-forcible means, and 21% were reported as attempts only. Forcible burglaries included defeating a security system (alarm), tripping an alarm and returning later, breaking or removing a door, smashing or breaking a window, cutting or removing a window, forcing or prying a window, or cutting and removing a screen. Nonforcible burglaries included entering through an open or unlocked door or window, or entering an apartment unit with a key, but without knowledge and consent of the resident.

The fact that only 50% of burglaries in this sample were achieved through forcible means is somewhat surprising, since according to the Florida Department of Law Enforcement, a full 71% of burglaries of other residences known to the police in 1992 and 1993 in the entire state of Florida were classified as forcible (versus 21% non-

forcible, and only 8% attempts only). This may be due in large part to the nature of the lifestyle of the residents in the sample studied. Students may be more likely to leave doors and/or windows open and/or unlocked. In fact, Robinson and Robinson (1995) found through survey techniques that students living in apartment units frequently leave doors and windows unlocked and/or open when engaging in activities at or around their apartment complexes.

Another possible reason why a lower percentage of reported burglaries in the sample were forcible than for the state of Florida, is also related to student lifestyles. The unpredictable or "sporadic" activity patterns of individual students and the large clustering of dozens or hundreds of such individuals residing in a limited space, may discourage burglars from attempting forcible burglaries because of an increased likelihood of being discovered by a passerby (Robinson and Robinson, 1995).

Since the vast majority (82%) of reported burglaries in the sample occurred through the front of the building, the following tables focus only on the front of the building. Table 1 shows the type of front entrance for units with reported burglaries versus units with no reported burglaries. Table 1 demonstrates that a higher percentage of units with reported burglaries had sidewalks leading to a front entrance (71%) than units with no reported burglaries (61%). Meanwhile, a lower percentage of units with reported burglaries had porches or balconies (20%) than units with no reported burglaries (31%). A roughly equal percentage of units with reported burglaries and units without reported burglaries were located inside hallways (9% versus 8%, respectively)

This finding is consistent with the notion that apartment units which are located on public walkways are more likely to be burglarized than those that are located in more private areas, such as porches or balconies. Whether this is because the latter areas denote symbolic barriers to potential burglars cannot be addressed by this research.

Table I shows the type of front door for units with reported burglaries versus units with no reported burglaries. Table 1 illustrates that 96% of units with reported burglaries were equipped with wooden doors, versus 97% of units with no reported burglaries. A roughly equal percentage of units with reported burglaries and units with no reported burglaries had metal doors (4% versus 3%, respectively). Thus, there was no

meaningful difference in the type of front doors at units with reported burglaries and units with no reported burglaries.

Table 1.
Burglarized Units Versus Non-Burglarized Units

	Burglarized Units	Non-Burglarized Units
Type of Entrance		
Sidewalk	71%	61%
Porch or Balcony	20	31
Inside Hallway	9	8
	n=79	n=133
Type of Door		
Wood	96%	97%
Metal	4	3
	n=79	n=131
Type of Lock on Front Door		
Key in Knob Only	0%	2%
One Deadbolt Only	6	9
Key in Knob and One Deadbolt	91	89
Two Deadbolts	2	0
Key in Knob and Two Deadbolts	1	0
	n=79	n=131
Were Indicators of Alarms Present?		
No	95%	95%
Yes	5	5
	n=79	n=133
Average Distance From Unit to Nearest Parking		
mean distance	84 feet	91 feet
	n=79	n=132
Average Distance From Unit Parking to Nearest Street		
median distance	38 feet	60 feet
	n=76	n=130

Table 1 illustrates the types of locks on front doors for units with reported burglaries versus units with no reported burglaries. Table 1 shows that there is very little difference in the types of locks on front doors for units with reported burglaries and units with no reported burglaries. There were no units with reported burglaries that had only 1 key-in-knob lock, versus only 2% of units with no reported burglaries. Six percent (6%) of units with reported burglaries had only one dead-bolt lock, versus only 9% of units with no reported burglaries. A relatively equal percentage of units with reported burglaries and units with no reported burglaries had 1 key-in-knob and one dead-bolt lock (91% versus 89%, respectively). Only 2% of units with reported burglaries had two dead-bolt locks on the front door, versus no units with no reported burglaries. Finally, only 1% of units with reported burglaries had 1 key-in-knob and two dead-bolts, versus no units with no reported burglaries. Therefore, type of lock on the front doors of the units studied did not help account for any meaningful difference between burglarized and non-burglarized units in the sample.

Table 1 shows indications of alarms for units with reported burglaries versus units with no reported burglaries. Table 1 illustrates that an equal percentage of units with reported burglaries and units with no reported burglaries showed no indications of alarms on the premises (95%). Thus, presence of alarms also did not help differentiate burglarized and non-burglarized units in the sample of student apartment units. Clearly, alarms cannot deter burglars when alarms are not present. They were not present in the majority of units analyzed. Table 1 illustrates the average distances from unit to nearest parking for units with reported burglaries versus units with no reported burglaries. Table 1 shows that there was virtually no difference in the mean distance between the units and the nearest street, for units with reported burglaries (84 feet) and units with no reported burglaries (91 feet). That is, distance from unit to nearest parking was not meaningfully related to burglary.

Table 1 shows the distance from unit parking to nearest street for units with reported burglaries versus units with no reported burglaries. Table 1 demonstrates that there was a substantial difference in the mean distance from unit parking to nearest street for units with reported burglaries (38 feet) and units with no reported burglaries (60 feet). This provides very limited evidence for the accessibility thesis that units which are closer to streets are more likely than units further away from streets to be burglarized.

Figure 3 shows location of the units in their buildings as being either comer units or not corner units. Figure 3 reveals that 53% of units with reported burglaries were corner

units in the building. Only 915 of 3,570 (26%) apartment units in the population of apartment units in Zone 7 were corner units. Therefore, corner units were disproportionately represented in the sample of burglarized units. However, none of the measures of accessibility that were collected could help account for this difference. Rather, corner units were much more likely than non-corner units to be obstructed by natural foliage or structures. In other words, corner units were less surveillable than non-corner units. This was especially true from parking lots. Additionally, by targeting corner units, burglars would generally have to pass by fewer units during entry or exit, and therefore, would be visible to fewer people.

Figure 4 illustrates the location of the units in their buildings as first, second, or third floor units. Figure 4 reveals that the majority of units with reported burglaries were first floor units (59%), despite the fact that only 40% of units in the entire population of apartment units in Zone 7 were first floor units. Meanwhile, less burglarized units were second floor units (29%) and third floor units (13%). Certainly, first floor units are more accessible to burglars who approach from the first floor. It is unknown whether burglars who offend in the area are outsiders or are other residents within the apartment complexes. Thus, the assumption cannot be made that first floor units are more accessible, since burglars may very well approach first floor units from second or third floors in the same buildings. Whichever the case, first floor apartment units were also more obstructed than second and third floor units from foliage or structures. Thus, surveillability may help account for the disproportionate victimization of first floor units as well.

Conclusions and Recommendations

The most important finding of this research related to accessibility is that virtually all apartment units studied were highly accessible to burglars -- i.e., locks, doors, windows, and other security precautions were generally inadequate at both units with reported burglaries and units with no reported burglaries. Furthermore, only one out of the 51 complexes studied had security personnel or roving patrols, most were not fenced in or surrounded by walls to help alleviate trespassing and possible burglary, and none had neighborhood or apartment complex watches in effect. Yet, the overall 1993 rate of burglary for student apartment units in the area studied was much lower than the rate for other residences in Zone 7 of TPD's jurisdiction (27 per 1,000 residence versus 111 per 1,000 residences, respectively).

This should not be taken to mean that accessibility is not an important factor in why individual apartment units predominantly occupied by students are burglarized. While it may be the case that these aggregate level of apartment complex indicators of accessibility do not help differentiate burglarized and non-burglarized units, it may instead be true that low levels of accessibility play a factor in why any student apartment unit is selected for burglary. In other words, when only considering accessibility, virtually all apartments in the area studied could be considered suitable targets for burglary victimization. Still, despite the high levels of accessibility, they are rarely victimized relative to other residences in the area. This suggests that student apartment units are not advisable targets despite their high accessibility. Why this might be true is currently under investigation.

As for individual level or apartment unit indicators, most burglaries reported to the police occurred through front entrances, and half were forcible. Of the indicators of accessibility utilized in this study, only the average distance of the unit to the nearest street was meaningfully related to burglary. Burglaries units were farther away from streets than non-burglarized units, on average. Burglarized units were also disproportionately likely to be conner units and first floor units, as well. These differences could be partially attributable to differential levels of surveillability, as well, since corner units and first floor units were more highly obstructed by foliage and structure than non-corner units and second and third floor units.

Based on these findings, some recommendations from this study can be made to students living in apartment units, which will likely result in a lowered risk of being the victim of burglary. First, since front doors and windows appear to be particularly vulnerable, they should be equipped with better target hardening devices. These devices, as well as ones which are already in place, should be used with greater frequency by residents, since a large portion of the burglaries of student apartment units were non-forcible. A large percentage of such offenses probably could have been prevented merely by using greater caution and by locking doors and windows when away from the residences. Next, units which are at greater distances from the street appear to have been more vulnerable to burglary. Residents of such apartment units should use the greatest caution, due to the apparent heightened risk of victimization. Finally, any effort that is aimed at increasing surveillability by passers-by and other residents would likely serve to reduce the occurrence of burglary in apartment units occupied by students. Special attention should be paid to those units that are most

obstructed by natural foliage and structures (e.g., corner and first floor units). The implementation of these recommendations clearly is not the responsibility of law enforcement personnel, nor of any other professional who works in the criminal justice system. Rather, prevention of student apartment burglary can largely be realized by the student residents themselves, along with apartment managers, designers, and builders.

There is other evidence from observation of the apartment units in this sample that strategies aimed at decreasing accessibility may help prevent burglary. For example, one complex in the jurisdiction studied which had no reported burglaries in 1993, was completely inaccessible to outsiders who did not have keys to the single common entry. Two other complexes which had no reported burglaries in 1993 were fenced in and virtually inaccessible to outsiders due to electric gates at the entrances. Whether the absence of reported burglaries was due to these accessibility restrictions cannot be supported without further investigation. Yet, common sense suggests that if an apartment complex is difficult to enter, burglary victimizations at individual apartment units should be relatively infrequent.

The environmental factor of accessibility, and how it relates to burglary, is probably best understood in conjunction with other factors -- surveillability and occupancy at the least, plus student lifestyle patterns, and other factors such as time of day, day of week, and month of year. The reason(s) some apartment units were actually burglarized and others were not, may be understood by the presence of these other factors: poor surveillability; non-occupancy; student lifestyle patterns, and/or non-presence of offenders. Preliminary investigation into this matter has supported this assertion (Robinson and Robinson, 1995).

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